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| APPLICATION NO.                                                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|-----------------------------------------------------------------|-------------|----------------------|-------------------------|------------------|
| 10/824,866                                                      | 04/15/2004  | Hakam D. Hussein     | STL11730                | 7077             |
| 7590                                                            | 12/15/2006  |                      | EXAMINER                |                  |
| Seagate Technology LLC<br>1280 Disc Drive<br>Shakopee, MN 55379 |             |                      | RUTLAND WALLIS, MICHAEL |                  |
|                                                                 |             |                      | ART UNIT                | PAPER NUMBER     |
|                                                                 |             |                      | 2836                    |                  |

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/824,866             | HUSSEIN ET AL.      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Michael Rutland-Wallis | 2835                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 January 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 April 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 04/15/2004
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 4, 13, 17, 19 and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, 13, 16 and 20 of copending Application No. 11/122,960. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

With respect to claim 1, 13 and 19 of the instant application recites similar limitations, recited in claims 1 and 13 of Application 11/122,960, with the exceptions of the connection to connect the device to a source of energization is not referred to as "for hot-plugging", and the in line 9 of the instant application the limitations defining "a first time interval" is referred to as a "threshold resistance" in Application 11/122,960, a inrush limiting or protection determination of threshold resistance would take place in a time interval. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the connector recited in Application 11/122,960 for hot-plugging and for the impedance control circuit to limit current in the connection by controlling impedance during a time where the resistance in the system is below a threshold in order to protect the circuitry from large inrush currents.

With respect to claims 4, 17 and 21 of the instant application recites similar limitations, recited in claims 9, 16 and 20 of Application 11/122,960 with the exceptions of the Application 11/122,960 recites additional limitations requiring the inrush current limit circuit to control the current through the impedance after the first time interval. As

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the device of the instant applicant necessitates such a timing of the inrush current control circuit to limit the current after the connection of the device to a source of energization, the limitations to further require such timing of the inrush current limit circuit would have been obvious to one of ordinary skill in the art in order to control the initial current supplied after the connection of the device to the energization source is complete.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 12-15 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Watson et al. (U.S. Pat. No. 5,559,660)

With respect to claim 1, 12-15 and 19 Watson teaches an inrush current controller for a device, comprising: a connector (item 60) for hot-plugging (col. 1 lines 10-15) the device (item 16) into a source of energization (item 12); an impedance (formed when item 80 conducts AC voltage) having a current input (80b) that couples to a first contact (60c) of the connector, an impedance control input (80a), and a current

output coupling (80c) to the device; and an impedance control circuit (circuitry connected between item 62a and 80a) having a logic input (60a) coupling to a second contact of the connector, and having an impedance control output (item 62b) connected to the impedance control input, the impedance control output forcing the impedance OFF (col. 8 lines 28-41 impedance elements has high and low impedance states constituting ON and OFF states respectively) during a first time interval (time interval after connection formed with delay circuitry item 75 to determine also see embodiment in Fig. 2 with time delay element item 48) after hot-plugging, and the logic input enabling a limited inrush at the current input after the first time interval (see column 9 lines 23-33 smooth application of current).

With respect to claim 3 and 20 Watson teaches the impedance is continuously variable (see Fig. 5) as a function of the control input.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4-11, 16-18 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (U.S. Pat. No. 5,559,660) in view of Nguyen (U.S. Pat. No. 6,917,504)

With respect to claim 2 and 16 Watson teaches the device comprises hot pluggable system is a circuit board or circuit components, however is silent on particular examples of such boards. Nguyen teaches a similar hot pluggable system citing specific examples such as storage devices, peripherals and processor modules (col. 1 lines 27-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the connection system on Watson on the device examples of a data storage and computing system as seen in Nguyen in order to limit inrush current to expensive and sensitive equipment.

With respect to claims 4, 17 and 21 Watson teaches a time delay circuit (item 75) and coupled to the impedance control input to force the impedance OFF during the first time interval; and an inrush current limit circuit coupled to the logic input and the impedance control output, and providing an inrush current limit output enabling the limited inrush, however does not teach the circuit is also coupled to the current input. Nguyen teaches control circuit (item 24 RC time constant col. 7 lines 15-20) comprising a timer circuit, which is coupled to the current input. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Watson to couple the timer to the current input in order to sense a under voltage lockout or permit the setting of the input supply to a voltage other than that of the output of the input supply (Nguyen col. 5 lines 35-45).

With respect to claims 5 and 22 Watson as modified by Nguyen teaches the timer output overrides (locks out via under voltage lockout condition, see Nguyen col. 5 lines 35-45) he inrush current limit output to the impedance control output.

With respect to claim 6 Watson as modified by Nguyen are silent on the logic of the circuit as being open or closed after the first time interval. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an open logic in order to signal the expiration of the first time interval in order to control the impedance and limit inrush current.

With respect to claims 7 and 23 Watson as modified by Nguyen teaches the inrush current limit output gradually changes the impedance control output during a turn-on interval so that a device voltage has a slew rate (see Nguyen Fig. 4). Nguyen does not teach the range of 12 volts per 100 milliseconds, however it would have been obvious to one of ordinary skill in the art at the time of the invention to select components with such a time constant to operate with a slew rate of less than 12 volts per 100 milliseconds in order to protect the device of inrush currents.

With respect to claim 8 Watson as modified by Nguyen teaches the device has impedance that is partially inductive.

With respect to claims 9 and 24 Watson as modified by Nguyen teaches the timer resets automatically (when power is switched off the timer is switched off as well) when the connector is disconnected from the source of energization.

With respect to claims 10, 18 and 25 Watson as modified by Nguyen teaches the timer is capable of being triggered by voltage transients at the current input.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (U.S. Pat. No. 5,559,660)

With respect to claim 11 Watson teaches the logic input triggers the limited inrush and when the logic input is at a high level but is silent on logic input triggers the limited inrush when the logic input is open circuit because the detailed circuitry of the suggested circuit in (col. 7 lines 35-43) is not shown by Watson. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an open circuit at the input of item 62 in order to control the driver circuit when a voltage is received at the input of the 62a

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Robb et al. (U.S. Pat. No. 6,949,961) teaches a device relevant to Applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rutland-Wallis whose telephone number is 571-272-5921. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MRW



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